

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled)
2. (Currently Amended) A microactuator ~~array according to Claim 1~~ array

comprising:

a plurality of first terminals equal in number to a first number;

a plurality of second terminals equal in number to a second number; and

a plurality of microactuators equal in number to the product of the first number and the second number, the plurality of microactuators disposed in a lattice in a two-dimensional plane,

wherein each microactuator comprises a fixed electrode and a movable electrode that is movable with respect to the fixed electrode by electrostatic force,

wherein each first terminal is electrically connected to the fixed electrodes of microactuators equal in number to the second number,

wherein each second terminal is electrically connected to the movable electrodes of microactuators equal in number to the first number,

wherein the first terminals are not connected to any of the second terminals,

~~wherein the microactuators equal in number to the product of the first number and the second number are disposed in a lattice in a two-dimensional plane,~~

wherein one end of each microactuator is fixed at the fixed electrode, and the other end of each microactuator is movable with respect to the fixed electrode and has a beam section where the movable electrode is disposed, and

wherein each beam section is two-dimensionally bent and a portion of each beam section is two-dimensionally superimposed on the beam section of an adjacent microactuator.

3. (Currently Amended) A microactuator device comprising:
the microactuator array of ~~Claim 1~~ claim 2; and
a controller for selectively applying a voltage to the first terminals ~~equal in number to the first number and~~ to the second terminals ~~equal in number to the second number.~~

4. (Currently Amended) A microactuator device according to Claim 3, wherein, when the movable electrode of a ~~first~~ microactuator is driven so as to be attracted to the fixed electrode, the controller applies a voltage to the second terminal connected to the movable electrode of the ~~first~~ microactuator and to the first terminal connected to the fixed electrode of the ~~first~~ microactuator so that a potential difference between the movable electrode and the fixed electrode of the ~~first~~ microactuator is equal to or greater than a predetermined potential difference.

5. - 7. (Cancelled)

8. (Currently Amended) A microactuator device comprising a microactuator array and a controlling section,

the microactuator array comprising:
a plurality of microactuators, each microactuator comprising a movable section that is movable with respect to a fixed section, a first electrode disposed at the fixed section, and a second electrode disposed at the movable section and capable of generating electrostatic force between the first electrode and the second electrode by a voltage applied between the first electrode and the second electrode;

a first terminal group comprising a plurality of terminals; and

a second terminal group comprising a plurality of terminals,
wherein the movable section of each microactuator is movable between a first
position where the electrostatic force is increased and a second position where the
electrostatic force is reduced or eliminated, and so that a restoring force for restoring the
movable section of each microactuator to the second position is generated,

wherein the first electrode of each microactuator is electrically connected to
one terminal of either one of the first terminal group and the second terminal group, and is not
electrically connected to the rest of the terminals of the first and second terminal groups,

wherein the second electrode of each microactuator is electrically connected to
one terminal of the other of the first terminal group and the second terminal group, and is not
electrically connected to the rest of the terminals of the first and second terminal groups,

wherein a combination of the one terminal of either one of the first terminal
group and the second terminal group electrically connected to the first electrode of each
microactuator and the one terminal of the other of the first terminal group and the second
terminal group electrically connected to the second electrode of each microactuator is
characteristic of each microactuator,

wherein at least one terminal of the first terminal group is electrically
connected to the first electrodes or the second electrodes of at least two of the plurality of
microactuators, and

wherein at least one terminal of the second terminal group is electrically
connected to the first electrodes or the second electrodes of at least two of the plurality of
microactuators;

the controlling section is connected to the terminals of the first and second terminal
groups, and controls switching between the positions of the movable sections of the
respective microactuators by controlling electrical potentials at the respective terminals of the

first and second terminal groups, according to Claim 7, wherein the controlling section is constructed so that each terminal of the first terminal group is settable at first, second, and third electrical potential states, and so that each terminal of the second terminal group is settable at fourth, fifth, and sixth electrical potential states,

wherein the magnitudes of electrical potentials of the first to sixth electrical potential states satisfy a relationship in which: the electrical potential of the first electrical potential state $>$ the electrical potential of the second electrical potential state $>$ the electrical potential of the third electrical potential state \geq the electrical potential of the fourth electrical potential state $>$ the electrical potential of the fifth electrical potential state $>$ the electrical potential of the sixth electrical potential state, or satisfy the reverse relationship in magnitude,

wherein the difference between the electrical potential of the first electrical potential state and the electrical potential of the sixth electrical potential state is a voltage ~~which~~that moves to the first position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the second position when the electrical potential difference is applied between the first and second electrodes of said at least one microactuator,

wherein the difference between the electrical potential of the third electrical potential state and the electrical potential of the fourth electrical potential state is a voltage ~~which~~that restores to the second position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the first position when the electrical potential difference is applied between the first and second electrodes of said at least one microactuator,

wherein the difference between the electrical potential of the third electrical potential state and the electrical potential of the fifth electrical potential state and the difference between the electrical potential of the second electrical potential state and the

electrical potential of the fourth electrical potential state are voltages ~~which~~that maintain at the first position and do not restore to the second position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the first position when the electrical potential differences are applied between the first and second electrodes of said at least one microactuator, and

wherein the difference between the electrical potential of the second electrical potential state and the electrical potential of the fifth electrical potential state is a voltage ~~which~~that maintains at the second position and does not restore to the first position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the second position when the electrical potential difference is applied between the first and second electrodes of said at least one microactuator.

9. (Currently Amended) A microactuator device according to ~~Claim 8~~claim 8, wherein the first electrical potential state and the third electrical potential state are the same.

10. - 11. (Cancelled)

12. (Currently Amended) A microactuator device ~~according to Claim 11~~,comprising a microactuator array, a magnetic field generating section for generating a magnetic field, and a controlling section,

the microactuator array comprising:

a plurality of microactuators, each microactuator comprising a movable section that is movable with respect to a fixed section, a first electrode disposed at the fixed section, and a second electrode disposed at the movable section and capable of generating electrostatic force between the first electrode and the second electrode by a voltage applied between the first electrode and the second electrode;

a first terminal group comprising a plurality of terminals; and

a second terminal group comprising a plurality of terminals,

wherein the movable section of each microactuator is movable between a first position where the electrostatic force is increased and a second position where the electrostatic force is reduced or eliminated, and so that a restoring force for restoring the movable section of each microactuator to the second position is generated,

wherein the first electrode of each microactuator is electrically connected to one terminal of either one of the first terminal group and the second terminal group, and is not electrically connected to the rest of the terminals of the first and second terminal groups,

wherein the second electrode of each microactuator is electrically connected to one terminal of the other of the first terminal group and the second terminal group, and is not electrically connected to the rest of the terminals of the first and second terminal groups,

wherein a combination of the one terminal of either one of the first terminal group and the second terminal group electrically connected to the first electrode of each microactuator and the one terminal of the other of the first terminal group and the second terminal group electrically connected to the second electrode of each microactuator is characteristic of each microactuator,

wherein at least one terminal of the first terminal group is electrically connected to the first electrodes or the second electrodes of at least two of the plurality of microactuators,

wherein at least one terminal of the second terminal group is electrically connected to the first electrodes or the second electrodes of at least two of the plurality of microactuators, and

wherein the movable section of each microactuator has an electrical current path for generating Lorentz force by disposing the electrical path of each microactuator in the magnetic field generated by the magnetic field generating section and passing electrical current;

the controlling section is electrically connected to each terminal of the first and second terminal groups and to the electrical current path of each microactuator, and controls switching between the positions of the movable section of each microactuator by controlling an electrical potential of each terminal of the first and second terminal group and the electrical current flowing in the electrical current path of each microactuator, wherein the controlling section is constructed so that each terminal of the first terminal group is settable at first and second electrical potential states and so that each terminal of the second terminal group is settable at third and fourth electrical potential states,

wherein the difference between an electrical potential of the second electrical potential state and an electrical potential of the fourth electrical potential state is a voltage ~~which~~that moves to the first position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the second position when the electrical potential difference is applied between the first and second electrodes of said at least one microactuator and when a predetermined electrical current is passed through the electrical current path of said at least one microactuator,

wherein the difference between an electrical potential of the first electrical potential state and an electrical potential of a third electrical potential state is a voltage ~~which~~that restores to the second position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the first position when the electrical potential difference is applied between the first and second electrodes of said at least one microactuator, and

wherein the difference between the electrical potential of the second electrical potential state and the electrical potential of the third electrical potential state and the difference between the electrical potential of the first electrical potential state and the electrical potential of the fourth electrical potential state are voltages ~~which~~that maintain at

the first position and do not restore to the second position the movable section of at least one microactuator, among the plurality of microactuators, having the movable section positioned at the first position when the electrical potential differences are applied between the first and second electrodes of said at least one microactuator.

13. (Currently Amended) A microactuator device according to ~~Claim 12~~claim 12, wherein the first electrical potential state and the third electrical potential state are the same.

14. (Currently Amended) An optical switch array comprising:
the microactuator array of ~~Claim 5~~claim 2; and
mirrors disposed at the respective ~~movable~~beam sections of the plurality of microactuators.

15. (Currently Amended) An optical switch system comprising:
the microactuator device of ~~Claim 7~~claim 3; and
mirrors disposed at the respective ~~movable~~beam sections of the plurality of microactuators.

16. (Currently Amended) An optical switch system comprising:
the microactuator device of ~~Claim 11~~claim 8; and
mirrors disposed at the respective movable sections of the plurality of microactuators.

17. (Cancelled)

18. (Currently Amended) A microactuator device according to ~~Claim 3~~claim 3, further comprising:
a magnetic field generating section for generating a magnetic field around the microactuator array,

wherein each microactuator has an electrical current path, disposed at a movable section including the corresponding movable electrode, for generating Lorentz force in the magnetic field, and

wherein, when the movable electrode of a ~~first~~ microactuator is driven so as to be attracted to the fixed electrode, the controller applies a predetermined voltage to the second terminal connected to the movable electrode of the ~~first~~ microactuator and to the first terminal connected to the fixed electrode of the ~~first~~ microactuator, and passes a predetermined electrical current through an electrical current path of the ~~first~~ microactuator.

19. (New) A microactuator array according to claim 8, wherein the number of the plurality of microactuators is equal to $m \times n$, where m and n are integers equal to or greater than 2,

wherein the number of terminals of the first terminal group is equal to m ,

wherein the number of terminals of the second terminal group is equal to n ,

wherein each terminal of the first terminal group is electrically connected to the first electrodes or the second electrodes of n microactuators of the plurality of microactuators, and

wherein each terminal of the second terminal group is electrically connected to the first electrodes or the second electrodes of m microactuators of the plurality of microactuators.

20. (New) An optical switch system comprising:
the microactuator device of claim 12; and
mirrors disposed at the respective movable sections of the plurality of microactuators.